

REMARKS

Claims 28-45 are pending, with claims 28, 30, 32, 36, 40, 43, and 44 being in independent form.

In the Office Action, claims 36, 37, and 43-45 were objected to for informalities raised in the Action under the rules of the Office resulting from an apparent typographical error. Claims 36, 43, and 44 have been amended merely to address these informalities. Thus, these amendments were made for reasons unrelated to the statutory requirements for a patent and have not narrowed the scope of the claims. Accordingly, the amendment of these claims does not raise any presumptions regarding, nor trigger the application of the doctrine of prosecution history estoppel to limit the range of equivalents.

Claims 28, 29, 36, 37, and 40 stand rejected for obviousness over GB 2 125 253 A to Standard Telephones and Cables Public Limited Company ("Standard") in view of U.S. Patent No. 5,960,398 to Fuchigami, et al. ("Fuchigami"). Claims 30-31 and 38-45 stand rejected for obviousness over Standard in view of Fuchigami and U.S. Patent No. 6,108,317 to Jones et al. ("Jones"). Claims 32-36 stand rejected for obviousness over Standard in view of U.S. Patent No. 5,715,521 to Fukasawa et al. ("Fukasawa"). Claim 32 has been amended. The remaining rejections are respectively traversed.

In accordance with the MPEP, three criteria must be met to establish a prima facie case of obviousness. First, the cited documents must teach or suggest all of the claim limitations. Second, there must be some suggestion or motivation, either in the cited documents themselves or in the knowledge generally available to one of ordinary skill in the art, to have combined the teachings of the cited documents. Third, there must have been a reasonable expectation that the documents could have been successfully combined.

The rejections cannot stand at least because no combination of the cited documents teaches all of the claim limitations. Motivations to combine the cited documents and reasonable expectations of successful combinations would also be absent, but it should be sufficient to point out the absent limitations.

According to claims 28, 30, 36, 40, 43, and 44, an electrical digital signal is first spread to produce a spread electrical signal. The spread electrical signal is then modulated on an RF subcarrier. The spread, modulated signal is added to a control signal.

In contrast, in Standard, the incoming signal is first modulated on an RF carrier and the modulated RF signal is later spread. See, for example, col. 1, lines 51- 93 of Standard. Therefore, the sequence of the modulating and spreading steps in these claims is inverted as compared to Standard. This distinction is significant, since it is advantageous to modulate the signal after spreading but before adding a control signal, as defined in claims 28, 30, 36, 43, and 44. As admitted in the Action, Standard is not concerned with adding control signals. The Action instead purports that this feature is disclosed in Fuchigami, stating that the digitized audio signal of Fuchigami corresponds to the control digital signal of the claimed invention.

According to Fuchigami, a copyright signal is frequency modulated, then later spread (see FIG. 2, blocks 114 and 116, and col. 5, line 67 - col. 6, line 13), again in contrast to the claims. The produced copyright signal is adjusted to have a relatively low level, and is selectively added to an incoming digitized audio signal. FIG. 2 of Fuchigami details the circuit structure of the signal processing block 32 of FIG. 1 (see col. 5, ll. 9-10). The signal processing block 32 (at summer 121) receives a digital signal from the A/D converter 31 of FIG. 1, which is a digital representation of the analog audio signal. The audio signal itself is not spread and is not modulated until much later, at block 35 of FIG. 1.

The Action attempts to equate the incoming digitized audio signal to the control digital signal of the claimed invention. This is improper. As discussed in the specification, a control channel for establishing connections between two terminals is implemented (see, for example, page 3, lines 4-10). The control digital signal, via the control channel, provides a means for the terminals to exchange setup information, such as spreading codes, during setup of a connection (see page 7, lines 11-13). This is quite different from the digitized audio signal of Fuchigami, which includes only the audio signal and no setup information. As will be appreciated by those of skill in this art, the digitized audio signal of Fuchigami can never be equated to a control signal of any kind.

The Action has construed the term "control digital signal" in Applicants' claims so broadly that it has lost all meaning. This is contrary to Section 2111.01 of the MPEP, which provides that "the words of the claim must be given their plain meaning unless applicant has provided a clear definition in the specification", citing In re Zletz, 893 F.2d 319, 321, 13 U.S.P.Q.2d 1320, 1322 (Fed. Cir. 1989). Section 2111.01 emphasizes that "It is only when the specification provides definitions for terms appearing in the claims that the specification can be used in interpreting claim language," citing In re Vogel, 422 F.2d 438, 441, 164 U.S.P.Q. 619, 622 (C.C.P.A. 1970). The Office's overbroad interpretation is also inconsistent with more recent authority that requires Office personnel to rely on an Applicant's disclosure to properly determine the meaning of terms used in the claims. Markman v. Westview Instruments, 34 U.S.P.Q.2d 1321, 1330 (Fed. Cir. 1995) (in banc) [subsequent history omitted].

Even using extrinsic sources, the digitized audio signal of Fuchigami can not be considered a control signal, but can only be considered a data signal. According to the Computer Desktop Encyclopedia, a control signal is "a pulse or frequency of electricity or light that represents a *control command* as it travels over a network, a computer channel or wireless." Contrast this with a data signal, which the Computer Desktop Encyclopedia defines as "a pulse or frequency of electricity or light that represents *data* as it travels over a network, a computer channel or wireless." Clearly, the digitized audio signal of Fuchigami fits the definition of a data signal since it represents audio, and does not represent a control command.

Applicant also contends that the copyright data signal in Fuchigami, while perhaps closer to a control signal, does not meet the definition of a control channel. Even assuming, for arguments sake, that the copyright signal in Fuchigami meets this definition, the copyright signal is not "[added] ... to the *modulated* electrical signal to provide a sum signal," as defined in claims 28, 30, 36, 40, 43, and 44. Instead, Fuchigami discloses adding the copyright signal to an unspread, unmodulated electrical signal straight from the A/D converter 31.

Furthermore, according to Fuchigami, the copyright signal is modulated at a low frequency of 5 kHz, which is not in the accepted RF range. As is known in the art, radio frequencies are classified as follows:

<i>Frequency (kHz)</i>	<i>Name</i>	<i>Abbr.</i>
10-30	Very low	VLF
30-300	Low	LF
300-3,000	Medium	MF
3,000-30,000	High	HF
30,000-300,000	Very high	VHF
300,000-3,000,000	Ultra high	UHF
3,000,000-30,000,000	Super High	SHF
30,000,000-300,000,000	Extremely high	EHF

Therefore, the copyright signal cannot be considered a radio frequency signal, and therefore cannot be equated to the electrical digital signal of the claimed invention. According to the claimed invention, the spread electrical digital signal is modulated on a subcarrier of a radio frequency. See, for example, claim 28.

Still further, the copyright signal of Fuchigami cannot be considered the electrical digital signal of the claimed invention because the copyright signal is only added to the digitized audio signals at selected times (see col. 6, lines 55-65).

Further yet, the copyright signal cannot be considered the electrical digital signal of the claimed invention because the frequency of the copyright signal at 5 kHz is actually lower than the frequency of the digitized audio signal, which is at a sampling frequency of 192 kHz out of the A/D converter when the signals are summed (see col. 4, lines 60-67). The Action incorrectly identifies the digitized audio signal frequency as 2 kHz, but 2 kHz is the *analog* audio signal frequency, which is not summed, but is instead only input to the D/A converter. In contrast, in the claimed invention, the frequencies of the first frequency range, which correspond to the spread, modulated, electrical digital signal, are *higher* than the frequencies of the second frequency range, which correspond to the control signal. Furthermore, as is known in the art, a sampling frequency of less than 5 kHz would not be high enough to sample an audio signal, so the digitized audio signal can never be at a higher frequency compared to the copyright signal, i.e., higher than 5 kHz.

Regarding claim 29, none of the cited documents disclose or suggest low-pass filtering of the spread signal. The Examiner states that the addition of low pass filtering is well known in the art. Applicant respectfully traverses the assertion of well-known prior art and requests that the Examiner cite a reference to support the

assertion so that the true content of the prior art can properly evaluated within the context of the field of the presently claimed invention.

Moreover, the Examiner's stated motivation is off-base. In the context of the claimed invention, low-pass filtering serves to remove high frequency components introduced in the spreading process, and is not just for the purpose of removing noise.

Claim 40 is considered novel and inventive for reasons in addition to those discussed above. According to Fuchigami, only the copyright signal is both modulated and spectrum spread. In pending claim 40, one digital signal is spread and the other one is modulated before they are summed. This is clearly not the case in Fuchigami. The digitized audio signal is not spread and is not modulated before being summed with the copyright signal.

Regarding claim 32, in Fukasawa, an incoming digital signal is spectrum spread to form a signal at the chip rate (see col. 3, lines 34- 39). The sync signal is also at the same chip rate. The signals are summed and the summed signal is then modulated on the *same* higher-frequency signal.

According to claim 32, the first and second signals are both modulated on *different* radio frequency subcarriers, only one of the signals being spectrum spread, before being summed.

Jones does not cure the deficiencies of Standard, Fuchigami, or Fukasawa, alone or in combination.

Accordingly, since the cited documents, alone or in combination, fail to disclose or suggest all of the claim limitations for at least the above reasons, the obviousness rejections of claims 28, 30, 32, 36, 40, 43, and 44 should be withdrawn. Furthermore, the rejected dependent claims are novel and inventive for at least the same reasons as stated above.

The third requirement of a prima facie case is also missing. Even if one had attempted to combine the disclosures of the cited documents, one would have been more likely to arrive at something that did not work at all or not in the manner claimed by the present application. As discussed above, one of ordinary skill in the art would have known that the features of Standard and Fuchigami cannot be combined without further modification to reach the subject matter defined by the

claims. In the absence of any suggestion in the cited documents of how to make such a combination operable, one would have faced a serious engineering problem that naturally would have had a low probability of success without substantial experimentation and effort, especially in view of the need to modify the teachings of the documents. It is well settled that "[t]he mere fact that the prior art may be modified in the manner suggested by the Examiner does not make that modification obvious unless the prior art suggested the desirability of the modification." In re Fritch, 23 U.S.P.Q.2d 1780, 1783-84 (Fed. Cir. 1992).

For the foregoing reasons, Applicants consider the application to be in condition for allowance and respectfully request notice thereof at an early date. The Examiner is encouraged to telephone the undersigned at the below-listed number if, in the Examiner's opinion, such a call would aid in the examination of this application.

Respectfully submitted,

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